

IN THE CLAIMS:

Please amend the claims as indicated below.

Please cancel claims 11-20, without prejudice.

- 5 1. (Previously Presented) A method for decoding a multidimensional code, said method comprising the steps of:

compensating for intersymbol interference caused by previously decoded multidimensional code symbols; and

- 10 compensating for intrasymbol interference caused by symbol components within a current multidimensional code symbol.

2. (Previously Presented) The method of claim 1, wherein the symbol components of one multidimensional code symbol are transmitted over more than one symbol interval associated with one of said symbol components.

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3. (Previously Presented) The method of claim 1, wherein said multidimensional code symbol comprises a number of transmitted symbol components that exceeds a number of available channels.

- 20 4. (Original) The method of claim 1, further comprising the steps of:

calculating intersymbol interference estimates based on said previously decoded multidimensional code symbols;

calculating intrasymbol interference estimates based on possible data symbol values; and

- 25 calculating branch metrics based on a received signal and said intersymbol interference and intrasymbol interference estimates.

5. (Cancelled).

- 30 6. (Cancelled).

7. (Cancelled).

8. (Cancelled).

5 9. (Original) The method of claim 1, further comprising the step of determining a best surviving path into a trellis state.

10. (Original) The method of claim 1, wherein said multidimensional code is 4D-TCM.

10 11-20. (Cancelled)

21. (Previously Presented) A system for decoding a multidimensional code, said system comprising:

means for compensating for intersymbol interference caused by previously  
15 decoded multidimensional code symbols; and

means for compensating for intrasymbol interference caused by symbol  
components within a current multidimensional code symbol.

22. (Previously Presented) The method of claim 1, further comprising the step of  
20 calculating an error metric for an initial symbol component using survivor symbols from a corresponding state to account for intersymbol interference.

23. (Currently Amended) The method of claim 22 5, further comprising the step of  
calculating an error metric for an subsequent symbol component using survivor symbols  
25 from a corresponding state to account for intersymbol interference and using at least one data estimate to account for intrasymbol interference.

24. (Currently Amended) The method or claim 23 6, further comprising the step of  
calculating a combined metric by combining said error metric for said initial symbol  
30 component and said error metric for said subsequent symbol component.

25. (Currently Amended) The method of claim 24 7, further comprising the step of computing a branch metric for a transition in a multidimensional trellis using said combined error metric.